

SCH4C1 DETERMINATION OF THE PARTICULATE MATTER CONSUMED DURING THE CONSUMPTION OF A PORTION OF A DUNKIE!

Purpose: To apply what we have learned in mass relationships while enjoying a little treat.

Materials: Paper Balance Treat

Procedure: Obtain the treat and place it on a clean piece of paper (put an X in the upper corner to remind you which side of the paper is up). Very carefully determine the mass of the treat/paper – do not get rid of the paper. Return to your desk and make 5 observations on your treat. Take one bite of the treat but do not eat all of it. Determine the mass of the remaining amount of your treat, ensuring that the paper used is the same and that is face up. Dispose of the remnant quantity of your treat in an appropriate fashion.

Observations:

Table 1 Appearance of treat

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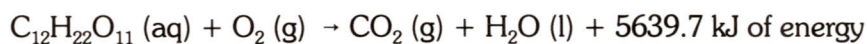
Table 2 Table of Measurements

<i>mass of dunkie and paper before being eaten (g)</i>	
<i>mass of dunkie and paper after one bite(g)</i>	
<i>mass of dunkie consumed in one bite (g)</i>	

Analysis:

Your dunkie is a mixture of various substances. We will make the assumption that 70% of the mass of the dunkie is sugar. The sugar that we consume in such treats is called sucrose –  $C_{12}H_{22}O_{11}$ . Your task is to *determine the number of carbon atoms* that you consumed in the single bite. Show all of your work, neatly, on the back of this page.

Sucrose is used up in your cells by the following chemical reaction:



Answer the following questions using complete sentences and proper form:

- What type of reaction is taking place in your cells?
- Balance the chemical equation then tell me how many molecules of carbon dioxide are being produced for every molecule of sucrose that is consumed. How many molecules of water will be produced from one molecule of sucrose?
- How many moles of water will be produced from the consumption of one mole of sucrose? How many moles of water would be produced from one bite of the cookie?
- How much energy would be produced from the consumption of the bite ?
- If 32 kJ results in an average weight gain of 1 g of body mass, then how much mass would a person gain after eating his/her cookie? Again show your work in a neat fashion.